REMARKS

By this amendment, claims 20-23 are canceled, new claims 26 and 27 are added and arguments and a Declaration under 37 C.F.R. 1.132 is submitted to place this application in condition for allowance. Currently, claims 8-11 and 24-26 are before the Examiner for consideration on their merits.

Applicants' attorney wished to thank Examiner Zheng for conducting an interview on June 11, 2009. The interview discussed the merits of the attached Declaration and its use to overcome the rejection based on Esler. Tentative approval of the argument that the Declaration is sufficient to remove the rejection was given in the interview. While the Examiner indicated that she felt that the proposed amendments did not overcome the rejection based on Geke, arguments are set out below against the rejection based on Geke.

First, claims 21-23 are canceled so that the rejection based on 35 U.S.C. § 112, first paragraph, is now moot. Claim 20 is canceled since the limitation regarding the oil well pipe is now in the independent claim. Claim 8 is amended to include the total acid and free acid number of the chemical conversion treatment liquid. Support for this change may be found on page 7, line 16, to page 8, line 6. New claim 26 further defines the ratio and this limitation is also found on page 8, lines 1-6. New claim 27 parallels new claim 26 but is dependent on claim 9, which defines the level of potassium. Therefore, new matter is introduced by this amendment.

Second, Applicants traverse the rejections of the claims and the traverse is set out below under the headings of the applied prior art.

United States Published Patent Application No. 2002/0011281 to Geke

In the Office Action, independent claim 8 is rejected under 35 U.S.C. § 103(a) based on Geke. The Examiner alleges that the steps of claim 8 are taught but for the use of a steel of 0.5-13% Cr to be coated. The Examiner alleges that since Geke teaches that the disclosed coating process can be applied to steel, it would be obvious to apply it to a Cr-containing steel. The conclusion is supported with the observation that an expectation of success would be present that a Cr-containing steel would be suitable for the coating process of Geke.

Applicants submit that when all of the differences are considered between the teachings of Geke and claim 8 and the assertions in the specification regarding the criticality of potassium, the absence of fluoride are considered, the only proper conclusion is that claim 8 is not taught or suggested by Geke.

There are a number of differences between the teachings of Geke and claim 8 and these differences can be enumerated as follows:

1) Geke does not teach anything regarding the treating of oil well pipe.

2) Geke does not teach phosphating Cr-containing steels.

3) Geke does not relate to the problems faced by the inventors in terms of trying to coat Cr-containing steels using phosphating solutions.

4) Geke is ambivalent regarding the presence of fluoride and the mandatory presence of potassium.

In making the rejection of claim 8, the Examiner is basically saying that it would be obvious to take the processing of Geke and apply it to oil well pipe that is made of 0.5 to 13% Cr steel. Moreover, the Examiner further contended in the interview that one

of skill in the art would optimize the control of the total acid and free acid parameters such that the claimed ranges would be met since Geke suggests that these parameters can be varied.

Applicants submit that the Examiner is drawing a conclusion of obviousness without the articulated reasoning required by *KSR* and the traverse is set out below under individual headings related to Applicants' arguments.

There is no reason to conclude that Geke is applicable for use on Cr-containing oil well pipes.

In the rejection, the Examiner is essentially taking the position that one of skill in the art would find it obvious to apply the phosphating treatment of Geke to Cr-containing oil well pipe. It is submitted that one of skill in the art would interpret Geke to teach using the improved phosphating solution in the context of carbon steels for automotive use, not oil well pipe Cr-containing steels. The purpose of Geke is to avoid the separate passivating rinse required for automobile manufacture, see paragraph [0012]. Geke accomplishes this aim by the use of the organic polymers of a certain concentration.

The materials contemplated for treatment are described in paragraph [0001] of Geke. These are steel, zinc- or zinc-alloy coated steel or aluminum, aluminum-magnesium alloys, aluminized steel or aluminum coated steel. It is also important to note the teaching in paragraph [0012], wherein the passivating rinse to be eliminated is in the context of the automobile industry.

Paragraph [0093] is another example of Geke suggesting that the materials for use with the improved phosphating solution are those pertinent to the automotive industry.

The example on page 7, paragraphs [0098-0116] is further evidence that Geke is concerned with steels for the automotive industry, not oil well Cr-containing steels. The steel used in the example is one use for automotive manufacture, i.e. ST1045. As the Examiner knows a 1045 steel is a medium carbon steel, which is not a Cr-containing steel.

The example also describes the phosphating treatment as a prelude to a coating using a cathodic dipping paint. This is to be read with the explanation in paragraph [0002] of Geke, wherein the importance of the phosphating treatment is described as a precursor to painting so that the paint adhesion is improved and paint loss is reduced. Paint loss is the very parameter measured in the Example of Geke. The use of the phosphate treatment of Geke in the context of cathodic electrocoating of car bodywork is disclosed in paragraph [0003].

Based on the disclosure of Geke, it is Applicants' contention that Geke is concerned with removing the passivation treatment when phosphating steels for the automotive industry. Geke explains that the passivating treatment to be eliminated is a requirement of the automotive industry corrosion standards, see paragraph [0013]. Therefore, one of skill in the art would not have any reason whatsoever to apply the process of Geke onto Cr-containing oil well pipe as is required in claim 8. All suggestions of Geke point to steel that is commonly used in the automotive industry. It is speculation or the use of hindsight that one of skill in the art would interpret Geke's processing to be applicable to all steels, no matter what their composition is or need is in terms of phosphating protection. Applicants ask the question as to why would one of skill in the art take the phosphating technique of Geke, which is specifically designed to

remove the automobile industry-mandated passivation treatment, and use it on oil well Cr-containing steel, which involves an entirely different use than automotive steel. There just is no reason to do so absent knowing the invention beforehand. Put another way, the Examiner does not have a reason to conclude that Geke can be used for oil well pipe that is made of Cr-containing steel.

In the rejection, the Examiner contends that the routineer would have reasonable expectation of success that the process of Geke would work when applied to 0.5-13% Cr steels. First, the issue of reasonable success is now couched in terms of oil well pipe made of Cr-containing steel. In light of the revision to claim 8, Applicants submit that the Examiner does not have a factual basis to assume that a reasonable expectation of success would exist from the routineer's standpoint such that it would be obvious to apply the process of Geke to Cr-containing oil well pipe. On what basis does the Examiner base the assumption of a reasonable expectation of success? Geke says nothing about treating oil well pipe or treating Cr-containing steel. Instead, Geke is concerned with elimination the passivating rinse required by the automotive industry. The Examiner is speculating regarding the expectation of success and this speculation cannot form a basis to support the contention of obviousness.

<u>The discovery of the criticality of having potassium weighs in favor of patentability.</u>

A second argument is that Geke does not teach the necessity of using potassium as part of the phosphating solution. In paragraph [0032], Geke acknowledges that sodium, potassium, and/or ammonium ions can be used for the adjustment of free acid. In paragraph [0091], Geke suggests that when lithium-containing baths are employed,

sodium should not be used and either lithium or potassium used for free acid adjustment.

While Geke makes no distinction between potassium and sodium for general phosphating baths, Applicants have discovered that potassium is critical for treating oil well pipe made of a Cr-containing steel. Paragraph [0036] of Applicants' published application explains that sodium does not work and potassium is required in order to obtain the excellent effect of hiding. Therefore, even if the Examiner were to say that one of skill in the art would use either potassium or sodium, Applicants' discovery that it is only potassium that works for Cr-containing oil well pipe is an unexpected discovery that merits patentability.

The discovery of the criticality of the absence of fluoride weighs in favor of patentability.

Another factor coming into play in the determination of patentability is the requirement that the phosphating solution avoid the presence of fluoride. Geke is ambivalent in this regard in explaining in paragraph [0033] that fluoride-containing baths are conventional but that fluoride could be absent, and in such a case, the Al content should be minimized. As with Geke's failure to recognize any difference with respect to sodium and potassium in the context of steels outside the automotive applications suggested in Geke, Geke also makes basically no distinction regarding the presence or absence of fluoride.

In direct contrast to Geke's failure to realize any importance with respect to absence of fluoride, Applicants discovered that fluoride is detrimental to achieving the desired effects of the invention, see paragraph [0033] of the published application.

Thus, even if the Examiner were to say that Geke teaches that fluoride is optional, Applicants' discovery of the criticality of avoiding fluoride to successfully coat a Cr-containing oil well pipe is another factor weighing in favor of the patentability of claim 8.

The allegation that the acid limitations can be arrived at via an optimization lacks a factual basis.

Claim 8 is revised to include limitations with respect to total acid and a ratio of the total acid to the free acid. In the interview, the Examiner expressed the view that these limitations are obvious based on the fact that Geke teaches that the total acid and free acid can be adjusted so that one of skill in the art would arrive at these values in optimizing the processing conditions of Geke.

The problem with this approach, in Applicants' view, is that the Examiner is assuming that one of skill in the art would arrive at the claimed limitations, which are for a Cr-containing oil well pipe, when Geke is concerned with a different class of steels.

The Example of Geke is instructive in that the total acid is 23 and the free acid is 0.9. This translates to a total acid to free acid ratio of 25.5, which is not even remotely close to the ratio range of claim 8 of 3-15. Paragraph [0032] suggests a total acid range of 15-30, whereas the claim calls for a total acid range of 30-55. How is it that one of skill in the art would arrive at a total acid range of 30-55, when Geke suggests a range that is essentially entirely outside that which is claimed? While the Examiner uses an optimization argument to say that one of skill in the art could arrive at the invention, on what basis is the optimization predicated on? In Geke, the aim is to coat steel as a precursor to painting. Oil well pipes are not painted. Even if one of skill in the art would optimize the total acid and free acid parameters of Geke, how can it be concluded that

such an optimization would arrive at the claimed ranges when the processing of Geke relates to a totally different material than that which is claimed? Applicants submit that the Examiner does not have a valid reason to conclude that the claimed range of total acid and ratio of total acid to free acid can be somehow derived from Geke and obviousness is not established with respect to these limitations.

The ranges of total acid and free acid of Geke are based on Geke's desired to produce a coating that has paint adhesion and it is apparent that the desired ranges of Geke differ markedly from that employed by the invention. This difference in aim of Geke and the invention demonstrates that one of skill in the art would not arrive at the claimed ranges by an optimization technique. Applicants ask the question as to how would one of skill in the art, who is seeking to phosphate a steel for the primary purpose of improving paint adhesion and has guidance from Geke in the desired value of total acid, i.e., 15-30, and an exemplified ratio of 25.5 in the disclosed Example, decide that the total acid should range from 30 to 55 and the ratio be between 3 and 15? The fact that Applicants are concerned with coating an oil well pipe, which does not have to have a surface that is amenable to painting, implies that the type of phosphating coating is not the same as that needed in Geke. This difference in aims alone is an indication that the teachings of Geke would not lead one to the control of the total acid and ratio required in claim 8 and these values are not obvious from Geke.

Claims 26 and 27 are separately patentable over Geke.

The same arguments made above for the acid limitations are repeated here. That is, the Examiner does not have a legitimate reason to conclude that the ratio of claims 26 and 27 can be somehow derived from the teachings of Geke. Morever, this

range is clearly outside the ratio that would be calculated based on Geke's disclosure. Since this range is outside Geke's teachings, how can it be derived from Geke. Lacking an overlap in this regard, the Examiner has no basis to allege that the ratio of these claims are obvious based on Geke.

The Examiner also has no basis to reject claim 9.

Claim 9 is believed to be separately patentable over Geke. Claim 9 defines a particular range of potassium content for the chemical conversion film. In Geke, potassium and sodium are only generally identified as ions to control the free acid concentration of the phosphating solution so that the Examiner can only say that the range of claim 9 could be arrived at through an optimization of Geke's process. Even, *assuming arguendo*, this were a legitimate position, Applicants' specification demonstrates that sodium does not work and that only with potassium and certain levels of potassium does the effect of the invention occur. The Examiner's attention is directed to Tables 1-4 of the specification, wherein the importance the potassium is illustrated so that the film uniformity and thickness are improved. This demonstration is a rebuttal of any allegation of obviousness by Geke. That is, the demonstration unexpectedly shows that not only is potassium is required (test results with no potassium were inferior) but that there must be a minimum level (test results outside the range were inferior). These kinds of results are not apparent from Geke and are further substantiation that claim 8 is patentable over Geke.

The totality of the differences and evidence weigh in favor of the patentability of claim 8.

While the Examiner may say that the invention is an obvious modification of the processing of Geke in that it is merely applied to a different material with result effective variables optimized, the invention is a significant advancement in the field of oil well pipes and cannot be considered to be derivable from the invention of Geke, which is the addition of a polymer to a phosphating solution so that a passivating rinse can be eliminated.

Applicants were faced with the problem of how to improve the performance of oil well pipe made from Cr-containing steels in terms of galling and sealing. Prior attempts at phosphating were unacceptable due to the presence of Cr in the steel. Coatings using copper proved to be problematic in cost and application difficulties. Applicants have discovered that the Cr-containing steel oil well pipe performance can be significantly improved if a number of factors are controlled. These factors include ensuring that fluoride is not present in the chemical conversion liquid, ensuring that potassium is present, and controlling the total acid and free acid content. Geke does not, in the least suggest an application to oil well pipes made of Cr or the criticality of the need to avoid fluoride, require potassium, and control the total and free acid numbers as claimed. The combination of all of the features of the invention solve a significant problem in the field of oil well pipes, cannot be derived from Geke, and because of this, the invention is deserving of patent protection.

Since claim 8 is believed to be patentable over Geke, its dependent claims 10, 11, 24, and 25 are also patentable over Geke.

Esler in view of Metals Handbook

In the Office Action, the Examiner notes that Esler uses the same composition as found in claim 8 but admits that Esler does not teach a conversion coating. The Examiner concludes that it would be a conversion coating.

The Examiner also admits that the claimed chemical conversion coating processing variables are not present in Esler, but that they are disclosed in Metals Handbook. The Examiner also alleges that, since Esler teaches a chemical conversion coating, it would be obvious to use the chemical conversion coating variables of Metals Handbook and that the claims specifying these variables would be obvious.

Applicants contend that the Examiner has committed error for the simple reason that Esler does not produce a chemical conversion film as is required by claim 8. The fact that Esler cannot be used for the purpose of alleging that a chemical conversion film is produced also means that the reliance on Metals Handbook is in error. Since Esler does not teach a chemical conversion coating, there is no reason to choose the chemical conversion coating variables of Metals Handbook and use them in the process of Esler.

The primary basis for this argument is the attached Declaration under Rule 1.132. The Declaration by inventor Izawa demonstrates that Esler does not produce a chemical conversion coating and that it is error for the Examiner to assume that this is the case based only on the similarity of the components of Esler's coating formulation. This Declaration makes a detailed comparison of the method of creating the chemical conversion film of the invention and comparing it to the film created according to the teachings of Esler. In particular, the Esler coating is replicated and is examined from a

visual standpoint and an x-ray diffraction analysis standpoint. The photographs in Exhibit 3 of the Declaration clearly demonstrate that the coating of Esler is not similar to the coating of the invention since the two sets of sample do not look even remotely similar.

More importantly, the x-ray diffraction analysis indicates that the hopeite (zinc phosphate, that is indicative of a chemical conversion film, was present in the test pieces of the invention but **was not** present in the test pieces of Esler. This is conclusive rebuttal evidence that the claimed chemical conversion film is not the same as the coating of Esler. Submission of this evidence means that Esler cannot be used as the basis for rejecting claim 8 under 35 U.S.C. § 103(a) when using an inherency position.

Metals Handbook does not make up for the failings in Esler. Metals Handbook merely stands for the proposition that chemical conversion coatings are known. However, Applicants are not claiming to be the first to use a chemical conversion coating. However, Applicants are the first to manufacture a surface treated steel material by performing chemical conversion treatment on a steel material having a steel composition containing 0.5 – 13% Cr using a chemical conversion treatment liquid containing zinc and phosphoric acid or manganese and phosphoric acid and further containing potassium to form a chemical conversion film of a zinc-phosphate type or a manganese phosphate type, wherein the chemical conversion treatment is carried out in the absence of fluoride ions.

The mere fact that chemical conversion coatings are known does not obviate the method of claim 8. Moreover, since Esler is not even concerned with a chemical

conversion coating, there is no reason why one of skill in the art would look to the variables of control discussed in Metals Handbook to modify the Esler process. Any such allegation would not have a basis in fact and could only be based on the impermissible reliance on hindsight to formulate a rejection. Since such an approach has been rejected by the courts, there is no legitimate reason to further reject claim 8 based on 35 U.S.C. § 103(a).

The submission of the Declaration also addresses the concerns expressed by the Examiner in the present rejection. That is, the Examiner took issue with the previous comparative data on the grounds that the Esler material was not cured. This objection is overcome by the attached Declaration that compares the invention to the Esler product when it has been subjected to the curing taught by Esler.

The Examiner also objected to the fact that it was not clear as to the coating composition of Esler. This objection is also overcome by the Declaration, wherein the specifics of the coating solution of Esler are detailed. The detail of the Declaration in terms of the identifying the composition of the test pieces and the inventive coating treatment liquid remove the possibility of any further criticism that Applicants have not provided sufficient detail to make the comparison of the Declaration proper and complete.

Based on the attached Declaration, Applicants assert that the Examiner's position on the inherent presence of a chemical conversion film in the product of Esler is rebutted and the rejection based on Esler against claim 8 and its dependent claims must be withdrawn.

Summary

In light of the above, each of the rejections based on Esler/Metals Handbook and Geke are overcome. The Esler rejection is effectively rebutted by the attached Declaration. The Geke reference is overcome by the arguments above that a *prima facie* case of obviousness is not present. Consequently, the application is now in condition for allowance.

Accordingly, the Examiner is respectfully requested to examine this application and pass all pending claims onto issuance.

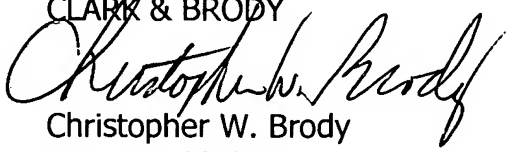
If the Examiner believes that an interview would be helpful in expediting the allowance of this application, the Examiner is requested to telephone the undersigned at 202-835-1753.

Again, reconsideration and allowance of this application is respectfully requested.

A petition for a three month extension of time is made. A check in the amount of $1,110.00 is enclosed to cover the cost of the petition fee.

Please charge any fee deficiency or credit any overpayment to Deposit Account No. 50-1088.

Respectfully submitted,
CLARK & BRODY



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